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NRO REVIEW COMPLETED

[redacted] 8653-69 25X1
Copy 12 of 12

16 January 1969

MEMORANDUM FOR: Director, CIA Reconnaissance Programs

SUBJECT : Program Progress Report

Forwarded herewith are Program Progress Reports (5 copies each) for OXCART and IDEALIST for the period 1 October 1968 - 31 December 1968.

[redacted] 25X1

DONALD H. ROSS
Brigadier General, USAF
Director of Special Activities

Attachment:
25X1 As stated [redacted] 6389-69)

25X1

[redacted] [redacted] 25X1

TOP SECRET

25X1 SAS/O/OSA, [redacted] 10 Jan 69)

Distribution:
1 - D/CRP
2 - D/CRP
3 - D/CRP
4 - D/CRP
5 - D/CRP
6 - DD/S&T Reg(w/o att)
7 - D/SA
8 - SAS/O/OSA
9 - D/O/OSA
10 - IDEA/O/OSA
11 - R&D/OSA
12 - RB/OSA

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25X1 [redacted] [redacted]

[redacted] 25X1

[redacted]6380-69 25X1
TAB A, Section 1

OXCART

PHASE-OUT SUMMARY AND PROGRESS

(1 October 1968 - 31 December 1968)

I. GENERAL

A. SCOPE COTTON Activities: During the period 9-20 December 1968, OXCART property records [redacted] 25X1
25X1 [redacted] were examined by the Agency Audit Staff representatives. A formal report of the audit will be furnished this headquarters by the auditors. However, interim reports were prepared by the Audit Team during the course of the survey, indicating that records and documentation for these assets were considered excellent; that the close-out actions had been performed in accordance with SCOPE COTTON directives; and that
25X1 placement [redacted] OXCART records [redacted] was 25X1
authorized. This audit will formally culminate actions by
25X1 this headquarters [redacted] with respect to the disposition and distribution that was made of the SCOPE COTTON assets.

[redacted] 25X1

The TAGBOARD Program is scheduled to depart [redacted] 25X1
25X1 [redacted] 15 February 1969. [redacted] is scheduled to depart 25X1

25X1
25X1

[redacted]

25X1 [redacted] during third quarter FY69. During the interim, a limited support posture in billeting, messing and other base services is being maintained [redacted] 25X1

C. A-12 Aircraft Storage: The following nine A-12 aircraft are stored at Palmdale, California, in accordance with SCOPE COTTON Decision #20:

Aircraft #121	(Test)
Aircraft #122	(Test)
Aircraft #124	(Trainer)
Aircraft #127	(Operational)
Aircraft #128	(Operational)
Aircraft #130	(Operational)
Aircraft #131	(Operational)
Aircraft #132	(Operational)
Aircraft #134	(TAGBOARD)

IDEALIST

DEVELOPMENT SUMMARY AND PROGRESS

(1 October 1968 - 31 December 1968)

I. AIRFRAME

25X1

[redacted]

B. Backup Generator Cooling - Installation of a cooling duct to the emergency AC/DC generator has satisfactorily solved the problem of inadequate cooling of this generator under full electrical load. This cooling duct picks up ram-air from the inlet to the secondary air passage at the engine face and conducts it directly to the emergency AC/DC generator.

C. U-2R FLIGHT TEST AND OPERATIONAL TRAINING SUMMARY (THRU 31 DECEMBER 1968)

	O.N.D. FLTS	TIME O.N.D.	TOTAL FLTS	TOTAL TIME
1 - 051	13	43.8	95	308.2
2 - 052	8	28.4	55	202.5
3 - 053	10	20.8	68	195.6
4 - 054	13	40.6	61	189.6
5 - 055	23	57.0	56	156.6
6 - 056	--	----	21	47.1
7 - 057	20	107.8	35	159.1
8 - 058	22	64.9	38	120.8
9 - 059	--	----	6	11.0
10 - 060	14	16.9	14	16.9
11 - 061	9	16.6	9	16.6
12 - 062	7	12.2	7	12.2
TOTAL	139	409.0	465	1436.2

II. PROPULSION

Engine Thrust Management - A review of Pratt & Whitney's recommendation for an EPR (engine pressure ratio) versus altitude schedule for operating the J75-P-13B engine

was based on analysis of flight test data by Pratt & Whitney, and concluded that this EPR schedule appeared to be too conservative. A less conservative EPR schedule is being developed to be based on data now being accumulated at Detachment G. This EPR schedule will then be verified at Detachment H to assure stall-free engine operation in the colder altitude conditions in that area. The objective is to establish a thrust management schedule which will provide maximum climb power without incurring compressor instabilities. (It may be possible to operate the engine to 665° EGT under all conditions, if no instabilities occur at the coldest known altitude temperatures).

III. PAYLOAD

A. "B" and "H" camera flight tests in the U-2R have been completed to demonstrate system compatibility with the U-2R. No significant compatibility problems were noted during these flight tests.

B. The first (of thirteen) IRIS II (Rotating Optical Bar) cameras was delivered on December 11, 1968. Delivery of three IRIS II cameras is scheduled during the third quarter FY69. Initial flight tests indicate that specifications for the system will be met or exceeded and that cost will be less than target price.

IV. GENERAL RESEARCH AND DEVELOPMENT

A. GENERAL R&D

1. Drag Reduction Program - The wind tunnel test program at NASA Ames Research Center was performed during this reporting period. These tests were conducted on a 12% scale model U-2R half span wing at near flight Mach and Reynolds numbers; analysis is now under way.

2. High Temperature Window Study - High temperature window tests were completed on 22 November 1968, in the Cornell Aeronautical Laboratory 96" Hypersonic Tunnel. A preliminary study was submitted by McDonnell Douglas Corporation on 26 November 1968, the final report was received at the end of the quarter.

Test results indicate window temperatures can be reduced to workable limits using cavity circulation flow plus comparatively low quantities of helium injection along the exterior surface of the window.

A recommended follow-on to this contract would be to explore and determine the influence of key design variables of the following:

a. Various contoured gas injection nozzles.

b. Variations in the optical window surface angle (relative to the vehicle waterline).

3. High Altitude Engine Relight Program - A program was initiated during FY-68 with Pratt & Whitney and Lockheed to develop a system for improving the altitude relight envelope of the J75-P-13B engine in the U-2R aircraft through use of oxygen injection directly into the burner cans. The test engine with all hardware installed should be shipped to Lockheed in early January. All required aircraft hardware has been installed in the test aircraft. Flight test of the system is to be conducted during the third quarter FY-69.

4. Methane Fuel Technology - A program on Methane fuel technology for airbreathing engines, which R&D had originally proposed for FY-68 and FY-69, was reviewed with Mr. Jones, Assistant Secretary of

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the Air Force for R&D. Mr. Jones indicated possible NRO interest in funding a limited effort. The status of Pratt & Whitney's company funded efforts in this area was reviewed at the Florida Research and Development Center in October. This program is now being considered for resubmission to NRO.

5. Haze Attenuation Study - This study demonstrated that significant image enhancement results from the use of a polarizing filter under certain conditions and that under other conditions, there is no image improvement; indeed, there may be an image loss, due to the need for more exposure. Significant improvements were also noted with color film when used with a polarizing filter. It is believed that the only way to demonstrate the utility of such a technique is to develop an automatic device applied to an IRIS II or similar panoramic camera. This development is under consideration for initiation in the third quarter of FY-69. 25X1

[redacted]

C. ADVANCED AERODYNAMIC RECONNAISSANCE SYSTEM NRO

The NRO approved a [redacted] FY-69 study effort for the Concept Evaluation Phase of an Advanced Aerodynamic Reconnaissance System. 25X1 25X1

[redacted]

25X1 [redacted] 25X1

[redacted]6380-69
TAB B, Section 1
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D. U-2R HIGHLIGHTS

[redacted]

2. Aircraft 053: This aircraft has the Hycon environmental test package installation, and has been the primary vehicle for flight testing conducted with the IDEALIST cameras.

[redacted]

25X1

4. *Aircraft 057: Swap Shop X, 14 January 1969

5. *Aircraft 058: Swap Shop XI, 4 February 1969

[redacted]

25X1

25X1

25X1

[redacted]

[redacted]

25X1

E. U-2R PROBLEM (Liquid Oxygen System)

Problems with the U-2R Liquid Oxygen (LOX) System were encountered during the SCOPE CROSS deployment to McCoy AFB, Florida (September 1968). This deployment exposed Article 058 to an operational environment of precipitation and high humidity. Venting losses of LOX were first attributed, by Lockheed (LAC), to a drain valve freezing, although the valve was of cryogenic design. Upon return to Edwards AFB, this problem was made a subject of special testing and evaluation by LAC and the detachment. Primary symptoms continued to be a high pressure build-up with subsequent quantity losses of LOX through venting, and low pressure warnings while in flight.

Corrective actions have included revision of maintenance procedures, examination for any possible contamination of systems, ARO Corporation performance of high pressure tests on valves and installation of a filter, and a rigorous operational testing of check valves and related hardware.

Current actions involve "replumbing" of the converter and removal of a check valve and a pressure control valve in the "economizer" circuit. This modified converter has, as of this writing, undergone 20 hours of in-flight testing (four flights) and results indicate the problem is near resolution.

IDEALIST

OPERATIONAL SUMMARY AND STATUS

(1 October 1968 - 31 December 1968)

I. OPERATIONAL MISSION SUMMARY

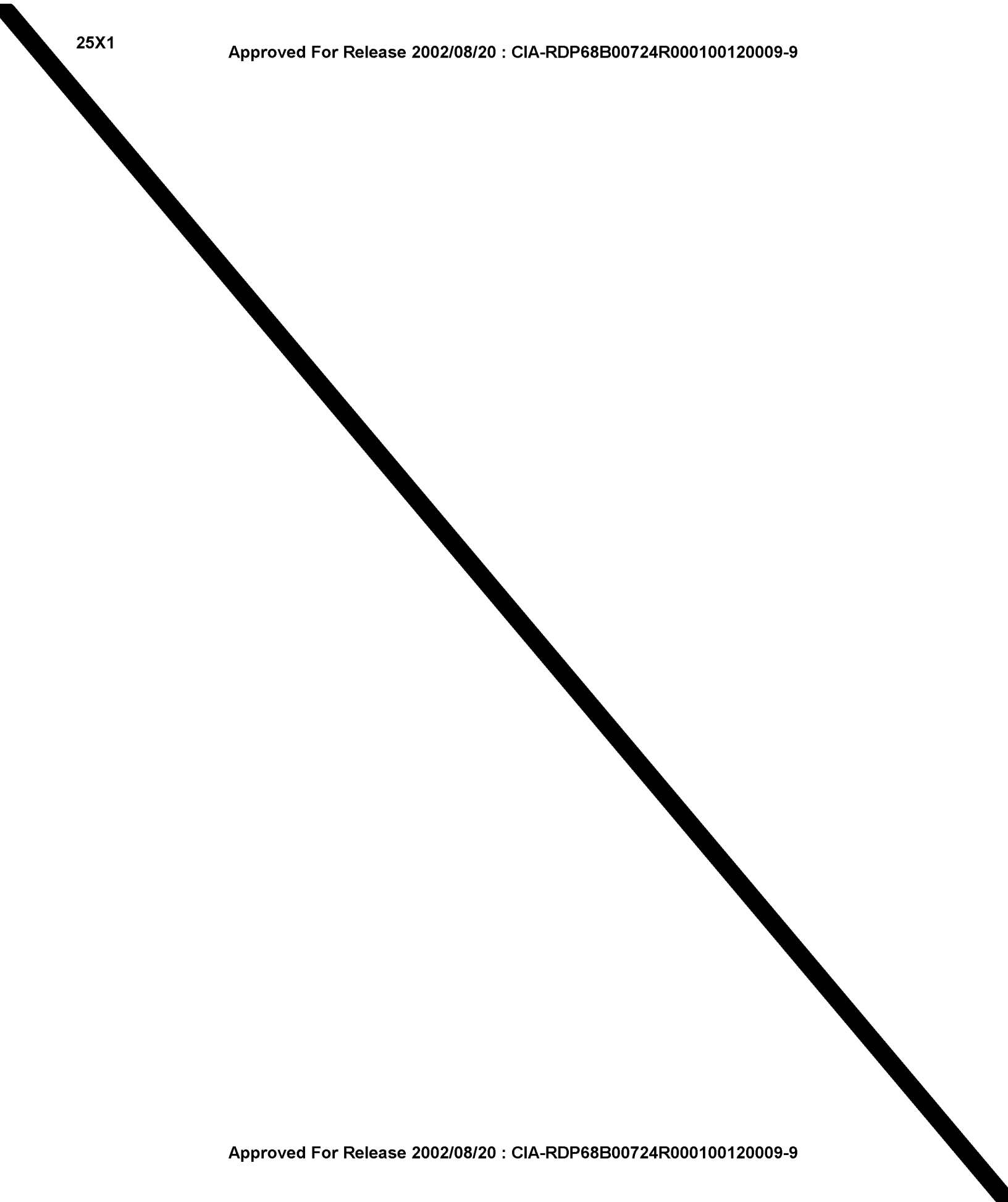
A. On 1 October 1968, the stand-down on IDEALIST/TACKLE overflight missions, imposed by the 303 Committee, was lifted to the extent that approval was granted to conduct [redacted] 25X1 photographic reconnaissance missions operating a minimum of 20 nautical miles offshore from the China Mainland.

B. Six Agency U-2 missions were flown during the second quarter of FY-69. 25X1

[redacted] 25X1

25X1

25X1



Approved For Release 2002/08/20 : CIA-RDP68B00724R000100120009-9

II. GENERAL

A. SCOPE SAINT: Detachment "G" deployed Article 348 (U-2G) [redacted] 25X1
25X1 [redacted] This operation was designed to exercise the Detachment "G" deployment capability as well as the introduction of the U-2 [redacted] 25X1 25X1
25X1 [redacted] A total of 30.0 hours was flown on the SCOPE SAINT exercise. The overall exercise was considered highly successful.

B. DETACHMENT "G" FLIGHT TEST ACTIVITIES:

[redacted] 25X1

3. RED DOT: Film testing - Six missions completed in support of IDEALIST and other programs, as well as the general intelligence community for determining usefulness of various films and filters under operational conditions.

4. Special Flights: Three high altitude photographic missions were flown in conjunction with the APOLLO 7 flight. These special photographic missions were flown in response to a request made by NASA-Houston (Mr. Krueger) to [redacted] Office of Research and Development. The objective of the flight tests was to provide comparative photography of the Western U.S. to that taken by the APOLLO 7 crew. OSA was not provided comparative results; however, the U-2 product was satisfactory and, according to [redacted] satisfied the test requirements. The [redacted] cameras were used in the test. 25X1 25X1 25X1

25X1
25X1

25X1

25X1

III. PILOT AND AIRCRAFT STATUS (AS OF 31 DECEMBER 1968)

DETACHMENT "G" (EDWARDS AFB)

Pilots [redacted]

25X1

Aircraft 2 U-2G
5 U-2R

DETACHMENT "H" [redacted]

25X1

Pilots

Aircraft

25X1

25X1

ROUTING AND RECORD SHEET

SUBJECT: (Optional)

Program Progress Report

FROM:	EXTENSION	NO.
D/O/OSA	5733	[redacted] 8653-69 25X1
		DATE 10 January 1969

TO: (Officer designation, room number, and building)	DATE RECEIVED	DATE FORWARDED	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)
1. (Originator) SAS/O/OSA		1/10/69		
2. D/O/OSA (Approval)		1/10/69		
3. D/M/OSA (Coordination)		1/13		
4. R&D/OSA (Coordination)		1/13		
5. COMPT/OSA (Coordination)		1/13		
6. EO/SA (Information)		1/14		
7. DD/SA (Approval)				
8. D/SA (Signature)				
9. SAS/O/OSA (Xeroxing)				
10. RB/OSA (Distribution)				
11.				
12.				
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